UNITED STATES MARINE CORPS
Logistics Operations School
Marine Corps Combat Service Support Schools
PSC Box 20041
Camp Lejeune, North Carolina 28542-0041

LOC 1625

STUDENT OUTLINE

CONVOY DEFENSE TECHINIQUES

1. Terminal Learning Objective: Given the requirement to execute vehicular movements, to ensure movement of assets to the specific destination is within the Commander's established time schedules, per the references. (0402.04.05)

2. Enabling Learning Objectives:

a. Given the references, Commander's guidance, and the a requirement to execute vehicular movements, direct the active and passive defenses of a convoy per the references. (0402.04.05f)

b. Given the references, Commander's guidance and a requirement to execute vehicular movements, identify convoy ambush techniques per the references. (0402.04.05aa)

OUTLINE

1. TYPES OF AMBUSHES AND AMBUSH FORMATIONS

a. Types of Ambushes. There are two general types of ambushes; immediate and deliberate. These ambushes can be employed both day and night and can involve both short and/or long range fires. A third type of ambush is the remote control ambush, so named for use of electrical and radio controlled means to activate explosive ambush devices.

(1) Immediate ambushes are known as harassing, hasty, or ambushes of opportunity. This type of ambush is normally initiated by the enemy when little or no advance warning of movement is received by him.

(a) The situation generally limits the time for planning, reconnaissance, or site selection.

(b) The enemy attempts to inflict losses or slow down the movement of personnel and vehicles by creating damage by short and/or long-range fires.

(c) Normally, no attempt is made to close with and assault the convoy.

(d) The ambush force may range in size from a few snipers to a small unit-size force whose mission is to deny freedom of movement.

(e) Immediate ambushes are characterized by:

1. Shortness of duration.

2. Participation of a relatively small number of enemy.

3. A limited volume of fire.

4. Limited use of mines and booby traps.

5. Rapid withdrawal of enemy forces.

(2) Deliberate ambushes are known as point ambushes (single killing zone) or area ambushes (multiple related point ambushes).

(a) This type of ambush is used when the enemy has prior information of the convoy and time exists for reconnaissance, planning, detailed briefings, and possibly rehearsals.

(b) Depending upon the objective, the enemy may either attempt to neutralize or destroy the convoy.

(c) The enemy may assault the convoy to capture prisoners and seize or destroy supplies and equipment.

(d) The ambush force ranges in size from small units to relatively large forces.

(e) The deliberate ambush is characterized by:

1. Initial heavy volumes of direct fire.

2. Employment of barriers, mines, and booby traps.

3. Subsequent use of indirect fires.

4. A physical assault on the convoy.

(3) The remote control ambush entails the laying of remote controlled mines and antipersonnel devices at the ambush site, together with a system for giving a warning of the arrival of the convoy forces.

(a) The explosive devices are detonated at the proper time by electrical or radio frequency controlled means.

(b) The ambush can be effected by a small number of enemy, unless an assault is contemplated.

(c) The ambush can be employed independently or in combination with the immediate or deliberate type ambushes.

b. Ambush Formations. There are five versions of the deliberate point-type ambush and two versions of the deliberate area-type ambush.

(1) Types of deliberate point-type ambush formations.

(a) Line formation.

1. The attack force is deployed generally parallel to the convoy's axis of movement. This places all, or part, of the convoy in the killing zone and subjects it to flanking fires.

2. The convoy can be trapped in the killing zone by natural obstacles, mines, booby traps, and direct and indirect fires.

(b) L-formation.

1. In the L-formation, the main ambush force is parallel to the convoy and delivers flanking fire.

2. The short side of the attack force is at right angles to the convoy and delivers enfilading fire which interlocks with the main fire force.

3. The convoy is then caught in the established killing zone.

4. The L-formation can also be used along a bend in a road.

(c) Z-formation.

1. The attacking force is deployed both parallel and perpendicular to the axis of the convoy.

2. The convoy then receives both flanking and enfilading fires. In addition, reaction forces can be prevented or delayed from reaching the convoy under attack by the enemy's enfilading fires.

3. This formation is used on fairly level terrain.

(d) T-formation.

1. In the T-formation, the attack force is deployed across, and at right angles to the convoy's route of movement.

2. The flanks are restricted by terrain, mines, booby traps, mantraps, or a combination of these.

3. This formation subjects the convoy to both enfilading and interlocking fire. The attack can be switched to the opposite direction by the attacking force reversing its position.

4. The enemy employs this formation in areas where one or both flanks restrict lateral movement.

(e) V-formation.

1. The attack force is deployed along both sides of the convoy's route of movement so that it forms the letter "V."

2. The V-formation subjects the convoy to enfilading, interlocking, and some flanking fire.

3. In a variation of this formation, the attacking force can narrow the "V" at the top so that they can completely flank the convoy.

(2) Deliberate area-type ambush formations can be either of the multiple point or baited trap type.

(a) Multiple point formation.

1. This type of ambush is established in an area having several roads or other escape routes.

2. Multiple point ambushes are established along the roads or other escape routes leading away from the central killing zone.

3. The convoy is permitted to enter the killing zone. Outlying ambushes do not attack unless discovered.

4. When the ambush is initiated, any friendly elements attempting to break contact are intercepted and destroyed by the outlying ambushes.

(b) Baited trap formation.

1. In this type of formation, a central killing zone is established together with several point ambushes along the routes relieving or reinforcing units would have to use.

2. The target in the central killing zone serves as "bait" to lure relieving and reinforcing units into the fires of the outlying ambushes.

2. PRECAUTIONARY (PASSIVE) MEASURES EMPLOYED TO PREVENT AN AMBUSH FROM ENEMY FORCES.

a. General. When conducting motor transport convoy operations in a hostile environment, no operational area can be considered to be totally secure. Precautionary measures must always be taken into account during the planning, preparation, and conduct of movements. The implementation will, however, have to weigh against the need for secrecy.

(1) Secrecy and deception.

(a) Secrecy in the planning stage is essential, particularly in relation to the date, duration, and route of a convoy.

(b) If there are few trafficable roads, the enemy knows when there is a convoy movement. The only way to mislead him is by maximum use of secrecy and deception.

1. Within the convoy itself, the position of the leader and his radio may be concealed by using a covered cargo truck for a command vehicle with the radio antenna deflected along the top of the truck.

2. Infantry security elements can keep automatic weapons out of sight to prevent the enemy from pinpointing their location in the convoy.

(2) Intelligence.

(a) Timely and accurate intelligence is the most effective defense against enemy ambushes.

(b) Every effort must be made to gain knowledge of the enemy's tactics, techniques, and movements along the convoy route.

(c) Rewards and protection to local informers should be considered.

(3) Clearance of likely ambush sites.

(a) In areas where ambushes are frequent, vegetation may be completely cleared from the road sides to a distance of 100 to 150 meters. This will permit security units in a convoy to use their fire power more effectively, and may discourage the enemy from occupying concealed positions immediately adjacent to the road.

(b) When time, security, and resources permit, the convoy may be halted and likely ambush areas searched on foot by troops deployed in a "V" formation ahead of the convoy.

(c) Engineers can be dispatched to search the route ahead of the convoys for concealed command detonated mines.

(d) When the importance of the convoy warrants, troop units may be prepositioned along the route or used to conduct detailed reconnaissance of the route immediately preceding the convoy arrival.

(4) Defensive operations and patrolling.

(a) One of the more effective means of preventing ambushes is for infantry units to screen and patrol areas adjacent to the roadnet and to establish counter-ambushes.

(b) Other means include reconnaissance by air, reconnaissance in force, and reconnaissance by fire.

(5) Control of vehicle movement.

(a) A checkpoint system should be established to report the location of the convoy along the route. This system monitors the progress and security of the convoy.

(b) Care and planning is needed to control the movement of routine administrative vehicles. Precautions should include the use of escorts, alternative routes, and staggered timings.

(c) All vehicle movement must be strictly controlled in hostile areas.

(d) At least two vehicles should travel together. Each vehicle should have an armed assistant driver.

(6) Air and artillery.

(a) Full use should be made of air reconnaissance of all routes likely to be used by the convoy.

(b) The convoy commander may be able to control his column more effectively if he, or his assistant, flies convoy control in a helicopter.

(c) Forward air controllers and artillery observers should be airborne to receive and control fire missions.

(d) If the situation warrants, convoys may be escorted by armed helicopters or close support aircraft.

(7) Communications.

(a) Multiple radios spaced at intervals throughout the column should be available.

(b) Radio operators should have abbreviated signal operation instructions (SOI's) committed to memory. Short

easily transmitted signals, which give the alert and identify the location of the enemy, are required.

(c) Each radio operator must recognize that his primary job is to give the alert in the event of ambush. Alternate radio operators should be designated in case the primary operator becomes a casualty.

(d) A long-range radio for contact with higher headquarters will be needed if the convoy is traveling a distance exceeding the FM radio range. The range of FM radio equipment you will encounter is approximately three to five miles depending on conditions.

(e) Radio, the primary means of communications, should be augmented with preplanned smoke, sound, and visual signals.

(8) Protection of individual vehicles.

(a) Troop-carrying vehicles should be protected against mines by sandbags and/or armor plating (hardening).

(b) Each vehicle should have an assistant driver.

(c) Weapons should be carried by all troops who must be trained in immediate action drills. Specific individuals should also be trained in the use of high explosives and hand grenades for use in destroying vehicles, if required.

(9) Security.

(a) Unit SOP's should include instruction on the preparation of a convoy prior to departure, march security, action if ambushed, and control and reporting procedures. The SOP must be understood and complied with by all motor transport personnel.

(b) Last-minute vehicle add-ons to the convoy may require a security augmentation. The drivers and troops in the add-on vehicles must be briefed before the departure.

(c) Adequate security, depending upon the situation and the route traveled, must be assigned. The security element for a platoon-sized truck convoy (15-25 vehicles) will range from two squads to a platoon.

(d) If available, electronic sensing devices (ground sensors, ground radar) should be used along the route.

(e) Making false starts and varying convoy organization, speed, security force, and intervals between vehicles tends to confuse the enemy and increase convoy security.

(f) All convoy personnel should wear protective headgear, armored vests, and carry their individual weapons.

(g) Leaders should constantly play mental war games with potential ambush sites.

(h) Units returning to home base must be especially alert because the enemy may seize upon this period of apparent relaxation to stage an ambush.

(10) Recovery and repair of vehicles.

(a) Plans must exist for the prompt recovery and repair of vehicles which have broken down or have become immobilized.

(b) Recovery vehicles, tow and repair equipment, and vehicle mechanics should be included in each convoy.

(c) There may be circumstances when it will be necessary to destroy a vehicle rather than hold up the convoy.

4. COUNTERMEASURES (ACTIVE MEASURES) EMPLOYED WHEN AMBUSHED.

a. General Considerations. Despite the most careful preparations, an ambush is usually unexpected. Although initiated with surprise and shock action, units must be taught that enemy ambushes can be defeated. They must realize that if the proper countermeasures are taken it will not only reduce the effectiveness of the ambush, but will also discourage future ambushes.

(1) Immediate-action drills.

(a) Reactions to ambushes vary with the type of ambush, security force strength, organization and composition of the convoy, and the terrain. No two ambushes are alike.

(b) Immediate-action drills help to prepare troops for attacks. The objective of these drills is to teach the

troops how to neutralize an attack and how to regain the initiative through immediate and positive action.

(c) Ambushed groups must gain fire superiority, those that have escaped should maneuver against the flanks and the rear of the enemy's position.

(2) Immediate objective when ambushed. In any type ambush the immediate objective is to break out of the ambush killing zone while returning the maximum amount of fire.

(a) Experience has shown that it is nearly always fatal for vehicles to halt in the killing zone. The killing zone is not always extensive unless multiple point ambushes are established against a single convoy.

(b) The enemy is seldom able to contain an entire convoy in a single kill zone. More frequently, only a part of the convoy, either the head, tail, or a section of the main body is ambushed.

(c) This means, in effect, that the part of the convoy not engaged can react aggressively to spoil the ambush.

(3) Subsequent convoy actions. The part of the convoy which is caught in the kill zone must rapidly move out of the ambush if the road is not blocked.

(a) Disabled vehicles must be bypassed or pushed out of the way. Occupants of these vehicles may be picked up by the following vehicles.

(b) Armored or other escort vehicles must not block convoy vehicles by halting in the traveled portion of the road to return fire.

(c) Vehicles which have not entered the kill zone must not attempt to run the gauntlet unless the road is clear and enemy fire is extremely light.

1. Those security vehicles not caught in the ambush must react to help counter the ambush.

2. Caution must be observed in assaulting the ambush force since the enemy usually tries to contain the convoy element with the use of mines and booby traps. The enemy also protects their own flanks with mines.

(4) Fire coordination and support.

(a) Coordination.

1. Immediate-action drills should emphasize that fire should not be indiscriminate.

2. Elements of the convoy should not fire on suspected enemy positions without coordinating with the escort forces since the escort vehicle and security may have left the road to attempt to overrun hostile positions.

(b) Support available to convoy command personnel includes:

1. Artillery or naval gunfire on enemy positions.

2. Close air support or aerial gunship fire.

3. Reaction forces.

4. Nondriving personnel can be utilized to place a heavy volume of fire on the enemy forces as vehicles move out of the kill zone.

(c) Immediate use of supporting fires is essential in limiting casualties and damage to equipment.

(5) Minor harassing attacks and sniper fire.

(a) Minor harassing attacks can occur in specifically marked no-fire areas and in areas not under enemy control, such as built-up areas or sparsely populated locations.

1. Troops must be alerted to the possibility of attacks in these areas and cautioned to always be on the alert and to wear protective headgear and armored vests.

2. Care must be exercised in returning fire since it is difficult to determine the point of origin of isolated fire. Especially important is the prevention of indiscriminate firing in populated areas.

(b) The enemy's purpose in conducting sniper attacks may be to instigate return fire which may alienate a friendly population. The best tactic in this situation is to

withhold fire unless the safety of the command is at stake and the target is clearly identified.

(c) If the column is hit by harassing mortar or rocket fire, the defense is essentially the same as for sniper fire with all vehicles continuing the march, usually at an accelerated pace.

d. REACTION FORCE AND REORGANIZATION.

(1) Reaction force. An important deterrent to ambushes is the existence of a well trained, mobile (preferably airmobile) reaction force with the sole mission of destroying ambush elements.

(a) Reaction operations should be simple, preplanned, rehearsed, and designed to gain and maintain contact with the enemy, block withdrawal routes, keep the ambush away from populated areas and provide for eventual encirclement, attack, and destruction of the enemy.

(b) To aid the reaction force, the security elements of the ambushed unit should keep the ambushes fixed as long as possible and maintain contact if the enemy withdraws. If necessary, a portion of the reaction force should aid the ambushed unit in reorganization.

(2) Reorganization. As soon as the enemy has withdrawn or been defeated, a reorganization is immediately started.

(a) Wounded are treated and arrangements are made for evacuation if necessary.

(b) Obstacles are cleared from the road and the convoy is prepared for movement. If disabled vehicles cannot be repaired or travel, their cargo should be redistributed if time is available.

(c) If necessary, disabled vehicles are destroyed after removing as many recoverable items as possible. The convoy commander will make all decisions with respect to destruction of vehicles.

6. TECHNIQUES FOR HARDENING VEHICLES

a. A hardened vehicle is one which is made less vulnerable to the effects of explosives or small arms fire by

the addition of sandbags, steel plating, or other passive protection devices.

(1) While hardening may be used to make certain vehicle components and cargo less vulnerable, its primary purpose is to provide protection for the vehicle's crew and passengers.

(2) The protection afforded is significant and often means the difference between injury and death.

b. Factors to be Considered in Determining Hardening Method. When an enemy threat exists, the following factors should be considered in determining the method of vehicle hardening to be used and the extent to which vehicles will be hardened.

(1) Flexibility.

(a) Vehicles should be hardened to provide the degree of protection required while retaining maximum flexibility in vehicle usage.

(b) Armor kits, once installed, are not readily removed. Therefore, the number of vehicles hardened should be limited.

(c) The cargo beds of vehicles carrying troops should be hardened with sandbags to provide for their protection, whereas beds of vehicles carrying cargo are not normally hardened.

(d) Motor transport commanders should make every effort to minimize the amount of hardening changes required to prepare vehicles for the different loads their vehicles are designed to carry.

(2) Weight.

(a) All vehicle hardening adds weight to the vehicle.

1. One effect of the additional weight through hardening is the reduction of the vehicle's cargo carrying capacity.

2. Another potential effect is to cause vehicle maintenance and durability problems.

(b) A vehicle's inherent load bearing capacity should be considered in deciding the method of hardening to be used.

(3) Availability.

(a) In the past, standard armor kits were developed for a number of our military tactical vehicles. Presently there are no standard armor kits for the LVS, HMMWV, or our 5-ton vehicles.

(b) Should it be necessary or desirable to fabricate armor kits, the availability of appropriate materials should be considered.

(4) Types of roads.

(a) To some extent, the types of roads traveled by motor transport vehicles can affect the protection required.

(b) Hardtop roads, for example, present less hazard from mines than do dirt roads.

(5) Maintenance.

(a) Vehicle hardening normally increases the amount of vehicle maintenance required and can cause mechanical and structural problems.

(b) The sandbags themselves, when used to harden vehicles, will require periodic removal and replacement to maintain them.

c. Vehicle Armor Kits. Two types of vehicle armor kits can be utilized to protect the vehicle, personnel, and cargo from mines, booby traps, and small arms fire.

(1) Standard armor kits, when available, are installed by the organizational maintenance personnel without the fabrication of any part or component of the vehicle.

(2) Nonstandard armor kits are developed when standard kits are not available for the vehicle. Each component is designed to fit the selected vehicle and provide the protection required. The below listed nonstandard armor kits are examples of those used in previous conflicts.

(a) The fragmentation shield, designed to protect the driver from mine blast, consists of armor plating placed under the vehicle, between the wheels.

1. Sandbags are placed between the metal plating and fenders.

2. These techniques make maintenance under the vehicle more difficult to perform and restricts the available vertical movement of the front wheels.

(b) Armor plating may be placed at various locations on the vehicle to protect the vehicle and driver.

1. Armor plating may be placed between the bottom of the fuel tank and the hangers that support the tank, to protect the tank against rupture by fragments and to reduce the chance of fire.

2. To provide protection against small arms fire, a fragmentation armor plate can be placed over the cab doors and/or in front of the windshield. This method increases the temperature inside the cab and reduces the driver's visibility.

d. Sandbagging Vehicles

(1) Sandbags are an effective means of reducing the effects of a blast, preventing fire from reaching the driver, and providing protection from small arms fire and fragmentation.

(2) The use of sandbags for hardening vehicles has certain advantages over the use of the armor kit.

(a) First, sandbags can be installed by the driver and are readily available in different sizes.

(b) The installation of sandbags does not permanently impair the flexibility of vehicle use, since sandbags can be easily added to, or removed from, the vehicle as the situation demands.

e. Maintenance of Hardened Vehicles

(1) Hardening vehicles, by improvised placement of armor plating, often places abnormal stresses on the vehicle which can result in early component failure.

(2) It is quite common for engine mounts and body bolts to loosen, requiring that they be checked and tightened regularly.

(3) Additional maintenance is required to keep the sandbags in good condition and to prevent deterioration of the vehicle because sandbags collect and hold moisture, causing rust to metal surfaces.

(a) Sandbags, as a minimum, should be checked weekly and removed every three months.

(b) When sandbags are removed, the vehicle should be cleaned, allowed to dry, and spot painted, as necessary, before the sandbags are replaced.

REFERENCES

1. FMFM 4-9

2. TM 11240-14/2, Logistics Considerations for Motor Transport Convoy Operations in a Guerrilla Environment.